Agent's Docket No: **ONX-113/DIV**

In the United States Patent and Trademark Office

Application No: 10/747,875
Filed: December 29, 2003
Title: PWM-Based Measurement Interface for a Micro-Machined Electrostatic Actuator
Applicant: David Horsley et al.
Examiner: Not Yet Assigned
Art Unit 2853

Express Mail Label Number: ED 047416615 US

Mailed: July 9, 2004
Fremont, CA

Information Disclosure Statement

Commissioner of Patents and Trademarks
Washington, District of Columbia 20231

Dear Sir or Madam:

Attached is a completed Form PTO-1449 and copies of the pertinent parts of the references cited thereon. It is requested that the document(s) on the enclosed form be made of record.

Part I (Authority)

This statement is filed pursuant to:

(X) 37 C.F.R. § 1.97(b).
This information disclosure statement is filed either (1) within three months of the filing date of the national applications; (2) within three months of the date of entry of the national stage as set forth in 37 C.F.R. § 1.491 in an international application; (3) before the mailing date of a first office action on the merits; or (4) before the mailing of a first Office action after the filing of a request for continued examination under §1.114, whichever event occurs last.
Accordingly, this information disclosure statement requires no fee and no certification.

( ) 37 C.F.R. § 1.97(c).
This information disclosure statement is filed after the period specified in 37 C.F.R. § 1.97(b), but before the mailing date of either (1) a final action under 37 C.F.R. § 1.113 or (2) a notice of allowance under 37 C.F.R. § 1.311.
Accordingly, this information disclosure statement requires either the fee specified in 37 C.F.R. § 1.17(p) for submission of an information disclosure statement under 37 C.F.R. § 1.97(c) ($180), or a certification according to 37 C.F.R. § 1.97(e).

( ) 37 C.F.R. § 1.97(d).
This information disclosure statement is filed after the period specified in 37 C.F.R. § 1.97(c).
Accordingly, this information disclosure statement requires the petition fee specified in 37 C.F.R. § 1.17(p) to consider an information disclosure statement under 37 C.F.R. § 1.97(d) ($180) and a certification according to 37 C.F.R. § 1.97(e).

Conditional Petition

It is respectfully requested that this information disclosure statement be considered, good cause being presented in Part III herein (certification). Please treat this paper as the required petition.

If this statement crosses in the mail with an office action, or is otherwise not in the indicated category of 37 C.F.R. § 1.97, it is respectfully requested that this statement be treated in the next appropriate category and made of record.

To the extent required, please treat this paper as a conditional petition for acceptance of the information disclosure statement.

Part II (Payment)

A check is enclosed as indicated:

(**X**) No fee is due.

( ) The fee specified in 37 C.F.R. § 1.17(p) for submission of an information disclosure statement under 37 C.F.R. § 1.97(c) is enclosed ($180).

( ) The petition fee specified in 37 C.F.R. § 1.17(p) to consider an information disclosure statement under 37 C.F.R. § 1.97(d) is enclosed ($180).

Part III (Certification)

Pursuant to 37 C.F.R. § 1.97(e), I certify:

(**X**) No certification is necessary.

( ) (1) Each item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the statement.

( ) The "communication from a foreign patent office" referred to in the certification is an International Search Report, possibly issued by the U.S. Patent and Trademark Office in its capacity as an International Search Authority or International Preliminary Examining Authority.

( ) The "counterpart foreign application" referred to in the certification corresponds to an ancestor or descendent application of the application for which this information disclosure statement is filed.

( ) (2) No item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, or, to my knowledge after making reasonable inquiry, was known to any individual designated in 37 C.F.R. § 1.56(c), more than three months prior to the filing of the statement.

Part IV (Additional Statement)

An additional statement regarding these items of information ( ) is, (**X**) is not, enclosed.

Copies of the cited art references _____ ( ) are enclosed,

Copies of the cited art references **A** through **R** (**X**) are of record in parent application Serial No. **10/012,688** and will be provided if the Examiner deems it convenient.

Copies of the cited art references _____ ( ) are not required under 37 CFR 1.98(a)(2)(i) because they are U.S. Patents and/or U.S. Patent Publications and

( ) the present application was filed after June 30, 2003, or

( ) the present application is an international application that entered the national stage under 35 USC 371 after June 30, 2003.

Dated: 7/9/2004

Respectfully submitted,

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FORM PTO-1449U.S. DEPARTMENT OF COMMERCE	AGENT. DOCKET NO. **ONX-113/DIV**	SERIAL NO. **10/747,875**
LIST OF PRIOR ART CITED BY APPLICANT (Use several sheets if necessary)	APPLICANT **David Horsley et al.**	
	FILING DATE **December 29, 2003**	GROUP **2853**

U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	A	5,867,302	2/2/1999	Fleming	359	291	8/7/1997
	B	6,137,941	10/24/2000	Robinson	385	140	9/3/1998
	C	6,296,779	10/2/2001	Clark et al.	216	66	2/22/1999

FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES	TRANSLATION NO
	D	0683414	11/22/1995	Europe	G02B	26/08		

OTHER PRIOR ART (Including Author, Title, Date, Pertinent Pages, Etc.)

	E		S. Suzuki, K. Sato, S. Ueno, M. Sato, M. Esashi, "Semiconductor Capacitance-Type Accelerometer with PWM Electrostatic Servo Technique," Sensors and Actuators, A21-A23 (1990) pp. 316-319
	F		B. E. Boser, "Electronics for Micromachined Inertial Sensors", Transducers '97, 1997 International Conference on Solid-State Sensors and Actuators, Chicago, June 16-19, 1997
	G		E. K. Chan, K. Garikipati, R. W. Dutton, "Characterization of Contact Electromechanics Through Capacitance – Voltage Measurements and Simulations," Journal of Microelectromechanical Systems, Vol. 8, No. 2, June 1999
	H		C. T. Nguyen, "Micromechanical Signal Processors," Doctoral Dissertation, UC Berkeley, December, 1994
	I		L. Y. Lin, E. L. Goldstein, R. W. Tkach, "Free-Space Micromachined Optical Switches with Submillisecond Switching Time for Large Scale Optical Cross-Connects, IEEE Ptotonics Technology Letters, Vol. 10, No. 4, April 1998
	J		H. Toshioshi, H. Fujita, "Electrostatic Micro Torsion Mirrors for an Optical Switch Matrix," Journal of Microelectromechanical Systems, Vol. 5, No. 4, December 1996.
	K		A. Selvakumar, K. Najafi, "A High Sensitivity Z-Axis Capacitive Silicon Microacceleraometer with a Torsional Suspension," Journal of Microelectromechanical Systems, Vol. 7, No. 2, June 1998.
	L		P. Cheung, R. Horowitz, R. T. Howe, "Design, Fabrication, Position Sensing, and Control of an Electrostatically-driven Polysilicon Microactuator," IEEE Transactions on Magnetics, Vol. 32, No. 1, January 1996, pages 122-128.
	M		M. Oda, M. Shirashi, "Mechanically Operated Optical Matrix Switch," Fujitsu Scientific and Technical Journal, September, 1981.
	N		E. K. Chan, R. W. Dutton, "Electrostatic Micromechanical Actuator with Extended Range of Travel," Journal of Microelectromechanical Systems, Volume: 9 Issue: 3 , Sept. 2000 Page(s): 321 -328
	O		Fedder et al., "Multimode Digital Control of a Suspended Polysilicon Microstructure", IEEE Journal of Microelectromechanical Systems, Vol. 5, No. 4, December 1996, pages 283-297
	P		Yun et al., "Surface Micromachined, Digitally force-Balanced Accelerometer with Integrated CMOS Detection Circuitry", Tech. Digest IEEE Solid-State Sensor and Actuator Workshop, June 1992, pages 126-131
	Q		Office Action dated 10/04/2002 in prior application 10/012,668
	R		Final Office Action dated 1/17/2003 in prior application 10/012,688

EXAMINER	**DATE CONSIDERED**

*** EXAMINER:** Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.